Case 3463

Testudo gigantea Schweigger, 1812 (currently *Geochelone* (*Aldabrachelys*) *gigantea*; Reptilia, Testudines): proposed conservation of usage of the specific name by maintenance of a designated neotype, and suppression of *Testudo dussumieri* Gray, 1831 (currently *Dipsochelys dussumieri*)

J. Frazier

Conservation and Research Center, National Zoological Park, Smithsonian Institution, 1500 Remount Road, Front Royal, VA 22630, U.S.A.
(e-mail: kurma@shentel.net)

Abstract. The purpose of this application, under Article 75.8 of the Code, is to conserve the specific name *Testudo gigantea* Schweigger, 1812 in its customary usage for the giant land tortoise (family TESTUDINIDAE) found on Aldabra Atoll in the western Indian Ocean. Taxonomic and nomenclatural confusion in the 19th and early 20th centuries led to competing and contradictory proposals between 1982 and 2006 to supplant *T. gigantea* Schweigger, 1812, first with *T. elephantina* Duméril & Bibron, 1835 and then with *T. dussumieri* Gray, 1831. As a corollary, *Aldabrachelys* Loveridge & Williams, 1957, the genus-group name erected for the Aldabra tortoise, was supposedly reduced to a junior synonym of either the extinct Mascarene genus/subgenus *Cylindraspis* Fitzinger, 1835, or the South American genus/subgenus *Chelonoidis* Fitzinger, 1835, and replaced as the name of the Aldabra tortoise by the generic name *Dipsochelys* Bour, 1982. To stabilise the accustomed name of this species as *Geochelone* (*Aldabrachelys*) *gigantea*, a neotype of *T. gigantea* Schweigger, 1812 was designated in 2006. A subsequent claim of the rediscovery of the long-lost holotype now again threatens this usage and stable nomenclature by (1) rendering *T. gigantea* a junior subjective synonym of *T. denticulata* Linnaeus, 1766, (2) resurrecting the former nomen oblitum *Testudo dussumieri* Gray, 1831 for the Aldabra tortoise, and (3) setting aside the neotype of *T. gigantea*; this action also again threatens the established use of *Aldabrachelys*. The supposed holotype rediscovery is not unequivocally proven, and for the sake of nomenclatural universality and stability, it is proposed that the neotype designation of 2006 be affirmed and that *T. dussumieri* Gray, 1831 be suppressed.

Keywords. Nomenclature; taxonomy; Testudines; TESTUDINIDAE; *Aldabrachelys*; *Chelonoidis*; *Cylindraspis*; *Dipsochelys*; *Geochelone*; *Testudo*; *Testudo carbonaria*; *Testudo denticulata*; *Testudo dussumieri*; *Testudo elephantina*; *Testudo gigantea*; land tortoises; Aldabra Atoll.

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1. Schweigger's (1812) much cited and debated publication included descriptions of seventeen species of land tortoises (TESTUDINIDAE), all considered at the time as being members of the genus *Testudo* Linnaeus, 1758 (Bour, 2008, p. 14). Among them, three new species of *Testudo* were described; of these, *Testudo gigantea* Schweigger,

1812, pp. 327, 362 (description republished in part, Schweigger, 1814, p. 58; see Bour, 2008, p. 16) has resulted in a great deal of nomenclatural and taxonomic debate, notably since 1982 when the established nomenclature was challenged by Bour (1982).

2. The original description of *Testudo gigantea* was based on a holotype (by monotypy) reported by Schweigger to be 'in the Paris Museum' (evidently the Muséum National d'Histoire Naturelle, Paris, 'MNHN') and said to have come from the royal collection of Lisbon; the locality was listed as 'Brasilia' (see also Bour, 1982, p. 117; 1984a, p. 163; 2006, p. 13; Crumly, 1986, p. 238; Pritchard, 1986, p. 522). Fourteen measurements of the specimen were provided; 'Longitudo testae' (shell length) was reported as '2 ped. 4 poll.' (Schweigger, 1812, p. 363), which may refer to the length of the carapace over the curve and is reckoned to have been equivalent to 756 mm (Bour, 1984a, pp. 165, 166; 2006, p. 18). Schweigger's (1812, p. 362) original description in 19th century Latin also included details about the shape of various body parts and the scalation. Interpretations of Schweigger's (1812) description of *Testudo gigantea* vary among modern authors (cf. Bour, 1982, p. 117; 1984a, pp. 163, 165, 169; 2006, pp. 12–13, 16; Crumly, 1986, p. 238; Pritchard, 1986, pp. 522, 524, 526). Schweigger's original description, while detailed for its time, does not allow unequivocal interpretation (Crumly, 1986, pp. 237–238; Pritchard, 1986, pp. 523–528); it does not provide diagnostic features for distinguishing his specimen of *T. gigantea* from other modern species of large, or giant, tortoises, several of which are known from various localities on islands in the western Indian Ocean and Galapagos Archipelago, as well as from continental Africa and South America.

3. Other species of land tortoise discussed and recognised by Schweigger were '*Testudo denticulata* Linnaeus,' and '*Testudo tabulata* Wallbaum'[sic] (Schweigger, 1812, pp. 322, 324, 444–445, 452–453), with specimens of both species reported from the Paris Museum. Because Walbaum (1782, p. 122) used the non-binominal combination '*Lorica testudinis tabulatae*,' his name is unavailable, and the name *Testudo tabulata* only became available after it was published by Schoepff (1792 pp. 56–63). It is regarded as a junior synonym of *T. denticulata* Linnaeus, 1766 (Wermuth & Mertens, 1961, p. 189; Fritz & Havaš, 2007, p. 270), now classified as *Geochelone* (*Chelonoidis*) *denticulata* (Linnaeus, 1766, p. 352) and known from eastern Brazil, elsewhere in South America, and Trinidad Island. Schweigger's (1812, p. 322) report of a single shell of '*Testudo tabulata africana*' in the Paris Museum was presumably based on Schoepff (1792, p. 59; also published as Schöpf) who had given the provenance of *T. tabulata* as southern Africa in error (Fritz & Havaš, 2007, p. 270).

4. J.E. Gray (1831a, p. 3; 1831b, p. 9) placed *Testudo gigantea* Schweigger, 1812 within 'Var. γ' which was one of three 'varieties' that he listed within the synonymy of '*Testudo indica* Gmel. Fide Perrault.' Also included within Gray's (1831a, p. 3) synonymy of *T. indica* was '*Test. Dussumieri*, Schegel'[sic]. and '*Test. Dussumieri*, Schlegel MSS' (1831b, p. 9). Under Article 50.7 of the Code, Gray (1831b) is deemed to be the author of this name (which he used as a synonym), even though another originator (Schlegel) was cited (see also Fritz & Havaš, 2007, p. 265).

5. Duméril & Bibron (1835) recognised and discussed 22 species in the genus *Testudo*, including *Testudo gigantea* Schweigger, 1812, based on a specimen significantly larger than Schweigger's type (Duméril & Bibron, 1835, pp. 120–123). This

was the only specimen of this species reported from the Paris Museum, both in 1835 and nearly 20 years later (Duméril & Duméril, 1851, p. 5): it was from an unknown locality. Bour (1984a, p. 169; 2006, p. 13) concluded that specimen MNHN 9566, recently catalogued in the Muséum National d'Histoire Naturelle, Paris, was the specimen that Duméril & Bibron (1835) treated as *T. gigantea*. Bour (1982, p. 117; 1984a, pp. 168–169; 2006, p. 13) claimed that although Duméril & Bibron (1835, pp. 120–123) used Schweigger's name, *T. gigantea*, they actually had a new and different species: the Aldabra tortoise.

6. Duméril & Bibron (1835, pp. 89–98) also recognised and described '*T. tabulata* Walbaum, 1782', including *Testudo denticulata* Linnaeus, 1766 within the synonymy. In a discussion of confusions among tortoise species by previous authors, Duméril & Bibron (1835, p. 98), who instructed Schweigger during his visit to Paris (Duméril & Bibron, 1834, p. 416; Bour 1984a, p. 162 footnote 2; 2006, p. 19; 2008, pp. 7, 11; Adler, 2007, p. 140), stated unequivocally that '. . . *T. gigantea* of Schweigger does not bear the slightest resemblance to either *T. hercules* Spix or Tortue Marqueté' (their common name for *T. tabulata*); both of these last two binomens are today recognised as junior synonyms of *Geochelone* (*Chelonoidis*) *denticulata* (Linnaeus, 1766) (Fritz & Havaš, 2007, p. 270). Bour (2006, p. 19) asserted that MNHN 9554, reported to have a 19th century identification of '*T. carbonaria* Dum. Bib' and recently catalogued in the Muséum National d'Histoire Naturelle, Paris, as '*Chelonoidis denticulata* (Linnaeus, 1766)', is the same specimen that Duméril & Bibron (1835) reported on as *Testudo tabulata*. Bour (2006) further asserted that MNHN 9554 is the holotype of *T. gigantea* Schweigger, 1812.

7. Duméril & Bibron (1835, pp. 99–102) distinguished '*Testudo carbonaria* Spix' from '*Testudo tabulata* Walbaum'. This is notable because they reported that the two nominal species had the same geographic range, and for over a century *T. carbonaria* Spix, 1824 was commonly confused with *T. denticulata* Linnaeus, 1766, species that today are regarded as distinct (Williams, 1960; Fritz & Havaš, 2007, p. 268–269).

8. Duméril & Bibron (1835, p. 110 and following pages) also described a new species, *T. elephantina*; in doing so, they specifically distinguished it from Gray's (1831b, p. 9) *T. indica* 'Var. γ,' namely *T. gigantea* Schweigger, 1812. The locality of the species was reported to be islands in the 'Mozambique Channel,' particularly Anjouan, 'Aldebra'[sic], and the Comoros, but it was recognised by Duméril & Bibron that specimens of this species were commonly transhipped through Mauritius and Reunion Islands in the Mascarene Archipelago, which often caused misunderstandings about original distributions. Hence, the type series of *T. elephantina* in the Paris Museum was composed of specimens from the Mascarenes (Duméril & Bibron, 1835, p. 114; Rothschild, 1915, pp. 425–426; Bour, 1984a, p. 171). Rothschild (1915, pp. 425, 432) designated the largest specimen, measured by Duméril & Bibron (1835), as the 'type' (Article 74.5 of the Code); and Bour (1984a, p. 171; 1984b, p. 291) affirmed that the lectotype from the type series of *T. elephantina* was MNHN 7874.

9. During the 19th and early part of the 20th century, there was considerable confusion about how many species of tortoise occurred in the Seychelles, particularly on Aldabra Atoll, and which species name were correct (Bour, 1984a; Frazier, 2006a). Duméril & Bibron (1835, p. 120), Günther (1877, p. 22, footnote), Hubrecht (1881, p. 43) and Boulenger (1889, p. 168) regarded *Testudo gigantea* Schweigger,

1812 as similar to – and possibly conspecific with – *Testudo elephantina* Duméril & Bibron, 1835 (see also Bour, 1984a, p. 169; 2006, p. 15). Boulenger (1894, p. 305) referred to 'the true *Testudo gigantea* of Schweigger' in comparing the fossil *Testudo grandidieri* Vaillant, 1885 from Madagascar with the living tortoise on Aldabra Atoll.

10. *T. gigantea* was explicitly associated with Aldabra Atoll by Hubrecht (1881, pp. 43–44) and Boulenger (1889, p. 168), and this geographic association has continued for over a century, until today. Hence, the name *T. gigantea* is firmly attached to Aldabra Atoll.

11. *T. gigantea* Schweigger, 1812 has been consistently recognised as the oldest available name for the Aldabra tortoise for more than 50 years (Rothschild, 1897, p. 407; Williams, 1952, p. 557, footnote 1; see also Bour, 1984a, pp. 162, 169; 2006, p. 15), appearing repeatedly as the senior synonym in authoritative taxonomic reviews of the TESTUDINIDAE (Siebenrock, 1909, p. 529–530; Mertens & Wermuth, 1955, pp. 377–378; Loveridge & Williams, 1957, p. 225; Wermuth & Mertens, 1961, p. 204; 1977, p. 84; Fritz & Havaš, 2006, p. 122; 2007, pp. 265–266).

12. Between 1915 and 2006 various authors stated that Schweigger's unique specimen of *T. gigantea* was lost or, as was the custom at that time, never designated as a holotype (Rothschild, 1915, p. 430; Bour, 1984a, p. 162; 2006, p. 13; Crumly, 1986, pp. 238–239; Pritchard, 1986, p. 522).

13. Loveridge & Williams (1957, pp. 220 and following pages) reorganised *Testudo*, the land tortoises, into seven genera, with the large, and giant, tortoises assigned to the genus *Geochelone* Fitzinger, 1835. Recognising that there was no available subgenus for the Aldabra tortoise and its close allies (Williams, 1952, p. 557), they established the subgeneric name *Aldabrachelys*, and designated *Testudo gigantea* Schweigger, 1812 as the type species (Loveridge & Williams, 1957, p. 225).

14. Bour (1982, p. 117) stated that Schweigger's (1812) description of *Testudo gigantea* applied 'incontestablement' (unquestionably) to an extinct Mascarene tortoise, now known as *Geochelone* (*Cylindraspis*) *indica* (Schneider, 1783). He concluded that the name *Testudo gigantea* Schweigger, 1812 could not be applied to the Aldabra tortoise, claiming that it was a junior synonym of *Testudo indica* Schneider, 1783 and then decided that *T. elephantina* Duméril & Bibron (1835), was the next available name for the Aldabra tortoise.

15. The lectotype of *T. elephantina* (MNHN 7874), the 'Aldabra tortoise', was actually collected around 1830 on Mauritius ('Ile de France') (Bour, 1982, p. 117; 1984a, p. 171), a Mascarene island where two sympatric species of *Geochelone* (*Cylindraspis*), a completely different genus/subgenus of land tortoise, were endemic, until they were exterminated in the 17th or 18th century (Austin et al., 2002). However, there is no doubt that the lectotype is in agreement with the current population of the Aldabra tortoise. Bour (1982, p. 117) further concluded that because the type species of *Aldabrachelys* is *Testudo gigantea* Schweigger (Loveridge & Williams 1957, p. 225), *Aldabrachelys* is a junior synonym of *Cylindraspis* Fitzinger, 1835, of which *Chelonura indica* (Schneider, 1783) is the type species (Fritz & Havaš, 2007, p. 277). Thus, Bour (1982, p. 117) proposed a new genus *Dipsochelys* for the giant tortoises of the Seychelles-Aldabra-Madagascar region, and later (Bour, 1984a; 1984b; 1994, p. 136) published more extensive arguments along these same lines; in all cases, his conclusions were based solely on interpretations of Schweigger's original description.

16. Bour (1984a, p. 171 footnote 1; 1984b, p. 282) considered that *Testudo dussumieri* Gray, 1831 was a nomen oblitum, and reiterated his arguments for using the later name *Testudo elephantina* Duméril & Bibron, 1835 for the Aldabra tortoise.

17. Pritchard (1986) agreed with Bour (1982; 1984a) that Schweigger's (1812, pp. 327, 362–363) description of *Testudo gigantea* did not fit the Aldabra tortoise, that the correct name for this tortoise was *T. elephantina* Duméril & Bibron, 1835, and that *T. dussumieri* Gray, 1831 was a nomen oblitum. However, unlike Bour, Pritchard (1986) concluded that Schweigger's (1812) description referred to the South American tortoise *Geochelone* (*Chelonoidis*) *denticulata*. Pritchard stated (1986, pp. 532–533) that *Aldabrachelys* is a familiar name for the Aldabra tortoise, having been 'in regular usage' by many authors since it was established and that it might be appropriate to request the Commission to conserve it. He also observed that it would be undesirable to use the name *Testudo dussumieri* Gray, 1831, as it was 'extremely unfamiliar' in relation to the Aldabra tortoise.

18. Crumly (1986, p. 237) concluded that Schweigger's (1812) description was not easy to interpret, and observed that *gigantea* was 'the "established" name' for the Aldabra tortoise. In the interests of nomenclatural stability and universality Crumly advised retention of both *gigantea* and *Aldabrachelys* for the Aldabra tortoise; he quoted Stejneger (1933, p. 133) to explain the logic: 'It is not permissible to substitute one uncertainty for another uncertainty, much less an uncertainty for an established certainty.'

19. King & Burke (1989, p. 70) followed Pritchard (1986), as did Broadley & Howell (1991, p. 8) in their checklist and synoptic keys, and used *Aldabrachelys elephantina* for the Aldabra tortoise. However, numerous specialists in chelonian biology and systematics have continued to use the name *gigantea* for the Aldabra tortoise, employing either *Geochelone* or *Aldabrachelys* as the generic name (e.g. Meylan & Auffenberg, 1986, p. 303; 1987, p. 76; Crumly, 1988, p. 2; Ernst & Barbour, 1989, p. 250; Iverson, 1992, p. 249; Hailey, 2000, p. 185; Meylan & Sterrer, 2000, p. 52; Austin & Arnold, 2001, p. 2515; Díaz-Paniagua et al., 2001, p. 719; Zug et al. 2001, pp. 44 and following pages; Austin et al., 2002, p. 281; 2003, p. 1417; Hailey & Lambert, 2002, pp. 121–125, 130, 133–134, 137; Varela & Bucher, 2002, p. 139; Crumly & Sánchez-Villagra, 2004, p. 136, tab. 2; Furrer et al., 2004, p. 178; Márquez et al., 2004, pp. 99, 107, 109; Danilov, 2005, pp. 403–404; Leuteritz et al., 2005, p. 456; Russell et al., 2005; Kuchling, 2006, pp. 71–72; Meylan, 2006, p. 348; Olson et al., 2006, p. 397; Andreone et al., 2007, p. 318; Fritz & Bininda-Emonds, 2007, pp. 301 and following pages; Fritz & Havaš, 2007, p. 265; Leuteritz & Hofmeyer, 2007, p. 560; Márquez et al., 2007, p. 337; Reynolds et al., 2007, p. 31; Anquetin & Claude, 2008, p. 341; and Chiari et al., 2008, pp. 426–427, 430, 433). This is not to mention more than 100 papers on biology, ecology, husbandry, and other topics that deal with the Aldabra tortoise that were published in the second half of the 20th century (Stimson [in Pritchard, 1986, p. 522] reported 139 publications in 'the last 50 years' (i.e., before 1986); see also Frazier, 2006a). A preliminary review indicates more than 100 papers published during just nine years between 2000 and 2008 that use *gigantea* as the species name for the Aldabra tortoise (a list of these references has been deposited with the Commission Secretariat); these publications are primarily in peer-reviewed journals and academic books, but also in reports of intergovernmental organisations as well as books for general readership, and they deal with a variety of

disciplines including conservation, ecology, evolutionary theory, gerontology, husbandry, parasitology, physiology, wildlife management, and veterinary medicine (e.g. for just the year 2008 these include: Bays et al., 2008, p. 144; Burgin & Renshaw, 2008, p. 61; Eisenhawer, 2008, pp. 209, 213; Gaalema & Benboe, 2008; Gabrisch et al., 2008, p. 655; Goldsmith, 2008, p. 14; Hansen et al., 2008, pp. 3, 11; Kraus, 2008, p. 316; Leonardi et al., 2008, p. 7; Lutfullah et al., 2008, pp. 141–145, 147–149; Nardoni et al., 2008, p. 164; and O'Malley, 2008, p. 53). Likewise, major international organisations that depend on clear and stable zoological nomenclature continue to use *gigantea* for the Aldabra tortoise: the United Nations Environmental Programme-World Conservation Monitoring Centre (UNEP-WCMC, 2008); the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Charette et al., 1999; Fritz & Havaš, 2006, p. 122); the European Commission on Integrated Tariff (EC, 2002, p. 3256); the European Food Safety Authority (EFSA, 2007, p. 18); the International Union for the Conservation of Nature (Swingland & Klemens, 1989; IUCN, 2008); the Integrated Taxonomic Information System (ITIS, 2008); the International Species Information System (ISIS, 2008); and the EMYSystem (2008). Moreover, government legislation and reports of the Republic of Seychelles, the country where the Aldabra tortoise is found, continue to refer to *Geochelone gigantea* (e.g. GEF, 1992, p. 3; Republic of Seychelles, 1999, p. 121; Ferguson and Carolus, 2005, p. [10]), as does national legislation from other countries, such as Australia (e.g. New South Wales, 2005, p. 5149). These diverse examples clearly demonstrate established usage of the name *Testudo gigantea* Schweigger, 1812 for the Aldabra tortoise.

20. Gerlach & Canning (1995, pp. 133 and following pages) proposed *Dipsochelys resurrecta*, a nomen nudum, without description or type material. Gerlach subsequently abandoned this name and stated that *T. dussumieri* Gray, 1831 was the correct name for the Aldabra tortoise (e.g. Gerlach, 1997, p. 28; 2001, pp. 2 and following pages; 2004a, p. 67 and following pages; 2004b, p. 10; see Frazier, 2006b, pp. 369 and following pages as well as Fritz & Havaš, 2007, pp. 266–267 for more details).

21. Because Gray (1831a, p. 3) published *Testudo dussumieri* as a nomen nudum and then (1831b, p. 9) only as a junior synonym of *Testudo indica* Schneider, 1783 (Fritz & Havaš, 2007, p. 270), his name would ordinarily be unavailable under Article 11.6 of the Code. However, Bour (2006, p. 21) recently argued that the listing of '*T. Dussumieri.* Schlegel.' by Fitzinger (1835, p. 122) made the name *Testudo dussumieri* Gray, 1831 available under Article 11.6.1 of the Code. Reversing his previous position (Bour, 1984a, p. 171 footnote 1; 1984b, p. 282) that this was a nomen oblitum, Bour (2006, p. 21) stated that *T. dussumieri* Gray, 1831 was the correct name for the Aldabra tortoise, and designated a lectotype in the Leiden museum (RMNH 3231), from the type series listed by Gray (1831b, p. 9).

22. In addition to the considerable taxonomic and nomenclatural confusion that surrounded the giant tortoise of Aldabra Atoll during the 19th and early 20th century, since the publication of Bour's (1982) paper there has been noteworth nomenclatural instability and uncertainty (e.g. see citations in Frazer, 2006a and Fritz & Havaš, 2007, pp. 265–267). During just the past two decades no fewer than five generic names (*Aldabrachelys*, *Dipsochelys*, *Geochelone*, *Megalochelys*, and *Testudo*) and three specific names (*dussumieri*, *elephantina* and *gigantea*), in no fewer than eight binominal combinations, have been used explicitly to refer to the giant

tortoise that lives on Aldabra Atoll. Moreover, recent studies (e.g. Austin et al. 2003; Palkovacs et al., 2003; Karanth et al., 2005) indicate that six other nominal species, three of which are in contemporary use (Rhodin et al., 2008, p. 000.12), are also synonyms of *T. gigantea*: *Testudo daudinii* Duméril & Bibron, 1835; *Testudo hololissa* Günther, 1877; *Testudo ponderosa* Günther, 1877; *Testudo sumeirei* Sauzier, 1892; *Testudo gouffei* Rothschild, 1906; and *Dipsochelys arnoldi* Bour, 1982. Hence, some authors feel that, not counting erroneous spellings and nomina nuda, no fewer than nine species names have been applied to the Aldabra tortoise during the past two decades (e.g. Fritz & Havaš, 2007, pp. 265–267).

23. Proponents of replacing *Testudo gigantea* Schweigger, 1812 with either *Testudo elephantina* Duméril & Bibron, 1835 or *Testudo dussumieri* Gray, 1831 – based on speculations about Schweigger's original description – have recognised that numerous authors in hundreds of papers in a wide variety of scientific publications have for decades referred to the Aldabra tortoise as *gigantea* (see Stimson in Pritchard, 1986, p. 522; Gerlach, 2001, p. 23, tab. 1). Bour (1984b, p. 281), when asserting that Schweigger's (1812) holotype of *T. gigantea* was really *Cylindraspis indica* (Schneider, 1783), admitted that 'Nomenclatural novelties which arise are such that we are somewhat embarrassed to run counter to an apparently satisfying system'. Later, when declaring that the same specimen (the holotype of *T. gigantea*) was '*Chelonoidis denticulata* (Linnaeus, 1766)', Bour (2006, p. 15) wrote that '. . . from the beginning of the 20th century, the valid name for the Aldabra tortoise seemed to have been definitely settled, and the binomina [sic] *Testudo gigantea* or *Geochelone gigantea*, with Schweigger as the author, have been widely used until today'. Gerlach has repeatedly reported that *Geochelone gigantea* is more frequently used than his favoured *Dipsochelys dussumieri* (e.g. Gerlach, 1999a, p. 496; 2001, p. 23, tab. 1; Gerlach & Canning, 1995, p. 133). Pritchard (1986, p. 531) stated that '. . . *gigantea* has indeed been the name in commonest use for the Aldabra tortoises in the 20th century . . .' and 'Of course, invalidation of the familiar epithet *gigantea* represents a rather profound upheaval'. Hence, the proponents of name change have explicitly recognised that their actions entail replacement of the most frequently applied name, rejection of an established system, and nomenclatural 'upheaval' (see also Bour, 1984a, p. 162; Crumly, 1988; Austin et al., 2003, p. 1417; Frazier, 2006a). Indeed, publications that refer to the Aldabra tortoise as *dussumieri* have routinely clarified that this taxon is also known by the specific name *gigantea* (either *Aldabrachelys gigantea* or *Geochelone gigantea*), for the authors realise that the *gigantea* is the accustomed name and neither *dussumieri* nor *elephantina* are widely recognised (e.g. Gerlach & Canning, 1998a, p. 3; 1998b, p. 133; Gerlach, 1999a, p. 496; 1999b, p. 34; 2004b, p. 10; 2005, p. 937; Palkovacs et al., 2002, p. 216; 2003, p. 1403; Jacobson, 2007, p. 597; Kalandadze & Shapovalov, 2007; Leuteritz et al., [2008]). Bour et al. (2007, p. 105) even felt the need not only to explain that on other occasions *D. dussumieri* is named *Geochelone* (*Aldabrachelys*) *gigantea*, but also to specifically state that a specimen of *D. dussumieri* is not *Cylindraspis vosmaeri* – evidently an attempt to reduce nomenclatural confusion that could have arisen from Bour's previous assertions that *T. gigantea* is a junior synonym of *Cylindraspis indica*, a taxon closely aligned to *C. vosmaeri*. Not only do some authors propose abandoning the established nomenclatural system, but the changes that they propose have been contradictory and unstable. Between 1982 and 1994, Bour (1982; 1984a; 1984b; 1994)

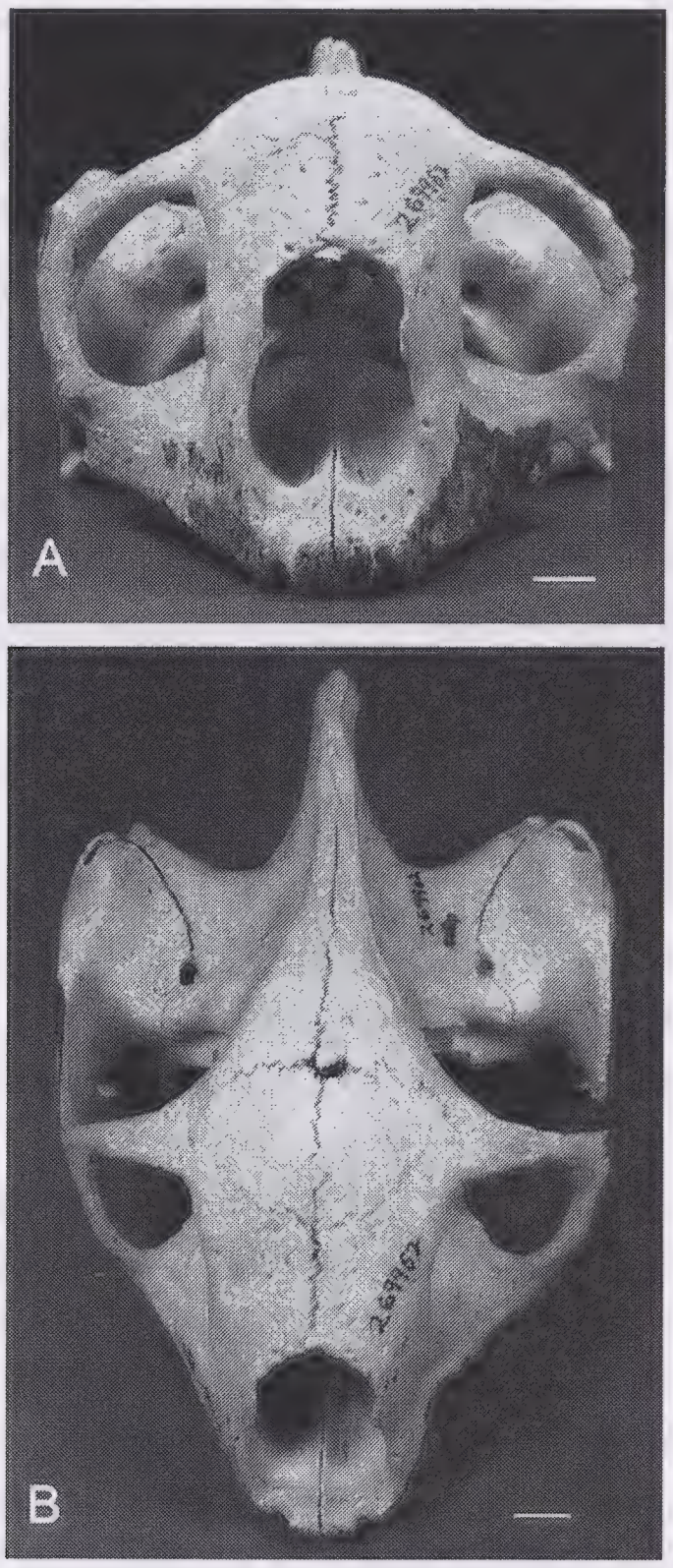

Fig. 1. Skull of neotype of *Testudo gigantea* Schweigger, 1812 (USNM 269962) (photos by Steve Gotte and George Zug): A. Anterior view; scale bar = 8 mm; B. Dorsal view; scale bar = 8 mm.

argued vigorously for using *Dipsochelys elephantina* for the Aldabra tortoise. In 2003, in an international peer-reviewed journal, he used *Aldabrachelys gigantea* (see Austin et al., 2003), but in the same year (Gerlach & Bour, 2003) he used *Dipsochelys dussumieri*, the name which he has been championing most recently (2006; 2008, p. 14).

24. In order to stabilise the nomenclature of the Aldabra tortoise, Frazier (2006a, p. 278) designated a neotype for *Testudo gigantea* Schweigger, 1812 under Articles 72.2 and 75 of the Code, an action developed after extended consultation with numerous specialists in chelonian systematics. The designated neotype is specimen USNM 269962 (an adult male from Dune Patates, South Island, Aldabra Atoll, Republic of Seychelles) housed in the National Museum of Natural History, Smithsonian Institution (see Figs. 1 & 2).

25. In response, Bour (2006) claimed to have rediscovered the long-lost holotype of *Testudo gigantea* Schweigger, 1812 (specimen MNHN 9554 in the Muséum National d'Histoire Naturelle, Paris). This specimen is an 'old stuffed male' recently identified by Bour (2006, pp. 16 figs. 2, 18, tab. 2) as '*Chelonoidis denticulata* (Linnaeus, 1766)'. The only data that are specifically associated with MNHN 9554 are in a hand-written catalogue entry, thought to date from about 1864: registration number '120,' locality

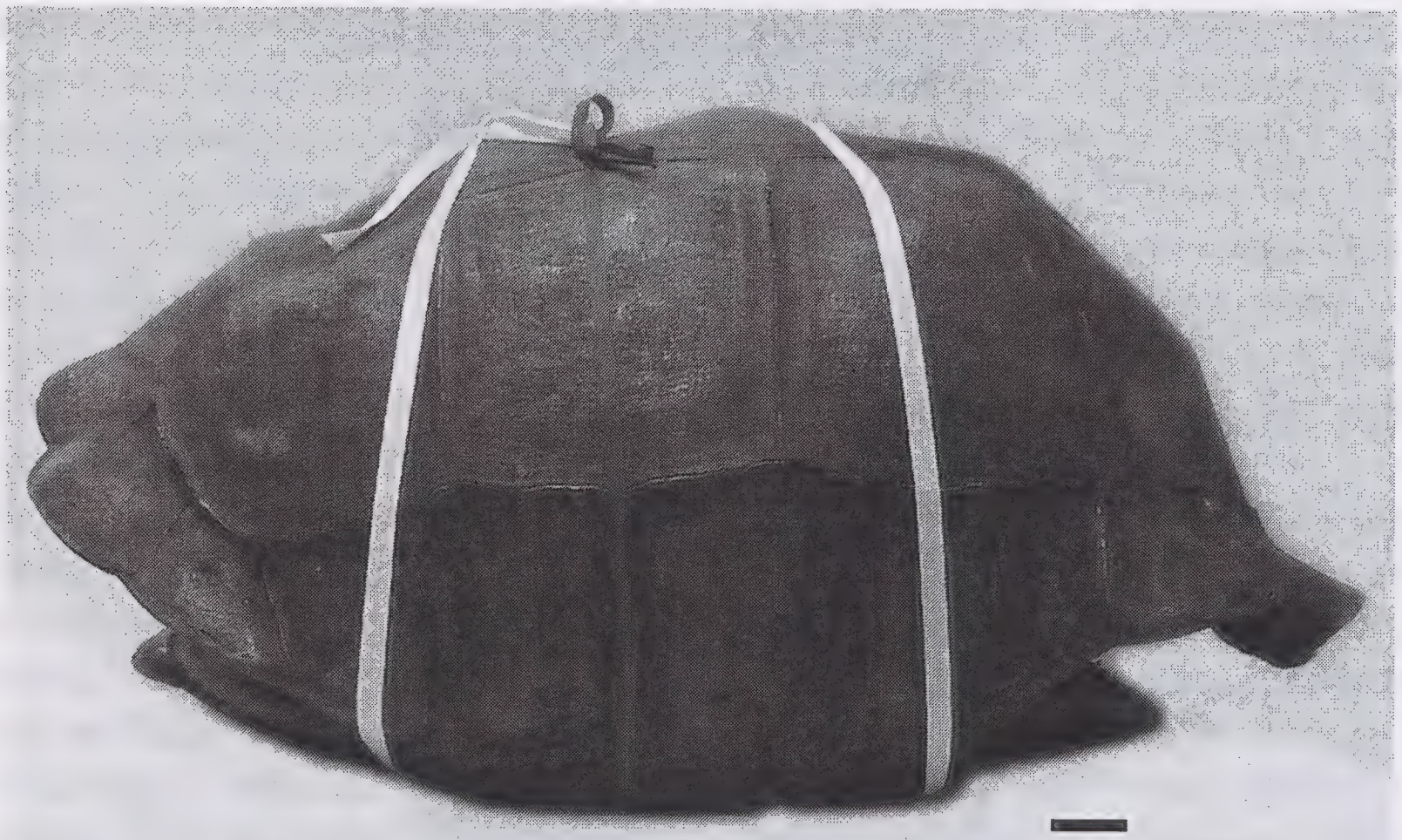

Fig. 2. Lateral view of the left side of the carapace of neotype of *Testudo gigantea* Schweigger, 1812 (USNM 269962); scale bar = 45 mm (photo by Steve Gotte and George Zug).

'Brésil,' and catalogued as '*Testudo carbonaria*, Dum., Bib., très vieux sujet d'origine inconnue' (very old specimen of unknown origin) (Bour, 2006, p. 19).

26. The reported rediscovery of Schweigger's type in the Muséum National d'Histoire Naturelle, Paris, is based on several fundamental but unsubstantiated assertions. Among other things, it assumes that both Schweigger (1812) and Duméril & Bibron (1835) misidentified the holotype of *T. gigantea* (e.g. see Bour, 2008, p. 14), although these authors differentiated between the species with which they made the purported misidentifications (*T. carbonaria*, *T. denticulata*, and *T. gigantea*). Hence, with information available, there will be continued and irresolvable claims and counter claims about the validity of MNHN 9554 as the holotype of *T. gigantea* Schweigger, 1812.

27. If specimen MNHN 9554 were accepted as the long-lost holotype of *T. gigantea* this would once again threaten the use of a specific name that has been in continual usage for over a century and clearly become established in a diverse literature, replacing it with a specific name that was until recently recognised unquestionably as a nomen oblitum, thereby further confounding a decades-long debate that has resulted in nomenclatural instability.

28. The use of the generic name *Dipsochelys* and the specific name *D. dussumieri* (Gray, 1831) for the Aldabra tortoise will continue to cause major confusion. These actions challenge the established nomenclatural system, particularly because of the recent promulgation of these unaccustomed names in the privately published, popular, and promotional literature (e.g. Gerlach, 1997; 2001; 2004a; Vetter, 2002, pp. 42–43; Gerlach & Bour, 2003; Bonin et al., 2006, pp. 209, 220; Bour 2006; Franklin, 2007, pp. 122, 129; Leuteritz et al., [2008]; Pedrono, 2008, pp. 37–39; see also bibliography of Gerlach in Frazier, 2006b). As a result of the present nomenclatural confusion, the Turtle Taxonomy Working Group (2007, pp. 177, 183) recently concluded that there is no clarity about what generic or specific name to use

for the Aldabra tortoise, listing '*Aldabrachelys* or *Dipsochelys* [formerly in *Geochelone*]' and '. . . Aldabran tortoises (*dussumieri* or *gigantea*) . . .'; similarly, Iverson et al. (2007, p. 94) and Rhodin et al. (2008, pp. 000.12, 000.22) came to the same confused conclusion. In this light, some authors have used '*Aldabrachelys elephantopus*' [sic], '*Dipsochelys* complex', and '*Geochelone* complex' (Claude & Tong, 2004, pp. 19, 20, 33, 36), or '*Geochelone gigantea*' and '*Dipsochelys elephantina*' (Miller & Dinkelacker, 2007, pp. 232, 242, 249, 260) in the same publication (even on the same page!), applying the different names interchangeably for the same taxon. Other authors have referred to '*Dipsochelys gigantea*' (Gerlach & Canning, 1995, p. 133; Depecker et al., 2006a, p. 511; 2006b, pp. 36–37), oblivious of the fact that *Geochelone* Fitzinger, 1835 is senior to *Dipsochelys* Bour, 1982, and the use of *gigantea* Schweigger for the Aldabra tortoise renders *Dipsochelys* a junior synonym of *Aldabrachelys* Loveridge & Williams, 1957, because the type species of *Aldabrachelys* is *T. gigantea.* Other manifestations of nomenclatural confusion are shown in phylograms that present *Dipsochelys* as distinct from *Geochelone*, where the latter includes *Geochelone gigantea* (Hoffman & Storz, 2007, supplementary figure). These examples from anatomical, conservation, ecological, evolutionary, and paleontological studies further illustrate the levels of nomenclatural confusion that have been generated around this taxon. In this context, Iverson et al. (2007, p. 96) warned '. . . for the sake of nomenclatural stability, we recommend restraint in proposing taxonomic changes until taxon and character sampling are adequate to provide robust support for such changes. To do otherwise will add confusion to an already complex literature (e.g. Frazier, 2006 and Bour, 2006), and may even hamper conservation efforts for this unique and imperilled clade of vertebrates (TTWG, 2007a)'. Hence, *T. gigantea*, the specific name that has been in constant use for more than 100 years to refer to the Aldabra tortoise, used in hundreds of publications by scores of authors, and referred to as the senior synonym in numerous authoritative reviews of the group, may be regarded as the established name for the Aldabra tortoise. It is, therefore, proposed that the names *Aldabrachelys* Loveridge & Williams, 1957, and *Testudo gigantea* Schweigger, 1812 be conserved under Article 75.8 of the Code, by retention of the neotype of *Testudo gigantea* Schweigger, 1812 as the name-bearing type and by suppression of the name *T. dussumieri* Gray, 1831.

29. The International Commission on Zoological Nomenclature is accordingly asked:

(1) to use its plenary power:
  (a) to set aside all previous type fixations for the nominal species *Testudo gigantea* Schweigger, 1812 and retain neotype USNM 269962 in the National Museum of Natural History, Smithsonian Institution, as designated and described by Frazier (2006a), as the name-bearing type;
  (b) to suppress the name *dussumieri* Gray, 1831, as published in the binomen *Testudo dussumieri*, for the purposes of the Principle of Priority but not for those of the Principle of Homonymy;
(2) to place on the Official List of Generic Names in Zoology the name *Aldabrachelys* Loveridge & Williams, 1957, type species by original designation *Testudo gigantea* Schweigger, 1812;
(3) to place on the Official List of Specific Names in Zoology the name *gigantea*, Schweigger, 1812, as published in the binomen *Testudo gigantea* and as defined

by the neotype designated in (1)(a) above, the specific name of the type species of *Aldabrachelys* Loveridge & Williams, 1957;

(4) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *dussumieri* Gray, 1831, as published in the binomen *Testudo dussumieri* and as suppressed in (1)(b) above.

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